

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

Claims 1-11 (cancelled).

12. (New) A method for regulating current through an electromagnetic actuator, the actuator, a first switch and a current-measuring circuit forming a series circuit, a free-wheeling diode being parallel-connected to the actuator, the method comprising:

closing and opening the first switch by an automatic control and a pulse generator using a pulse width modulation signal (PWM) in such a way that current flowing through the actuator and measured by the current-measuring circuit is regulated to a setpoint value;

altering a time duration of one on and off switching cycle of the PWM signal; and

superimposing a dither function in a form of a low-frequency oscillation on the PWM signal.

13. (New) The method as recited in claim 12, wherein for the dither function, a dither value is added to or subtracted from each pulse of the PWM signal.

14. (New) The method as recited in claim 13, wherein a time duration during which the dither value is added to the pulses of the PWM signal is equal to a time duration during which the dither value is subtracted from the pulses.

15. (New) The method as recited in claim 14, wherein the time duration during which the dither value is added to the pulses and the time duration during which the dither value is subtracted from the pulses yield a total time duration which is a multiple of the time duration of one on and off switching cycle of the PWM signal.

16. (New) The method as recited in claim 12, wherein the current flowing through the actuator and measured by the current-measuring circuit is freed from the dither function by a corrector.

17. (New) The method as recited in claims 16, further comprising:

measuring two current values in a time interval of the time duration during which the dither value is added to or subtracted from the pulses of the PWM signal; and
forming an average value of the two measured current values.

18. (New) The method as recited in claim 12, further comprising:

ascertaining, by a diagnostic, the current through the actuator from measured moments the first switch is switched on and off; and
comparing, by the diagnostic, the ascertained current to at least one of the current measured by the current-measuring circuit, and the setpoint value.

19. (New) A memory device storing a computer program, the computer program when executed on a computer, causing the computer to perform the following:

closing and opening the first switch by an automatic control and a pulse generator using a pulse width modulation signal (PWM) in such a way that current flowing through the actuator and measured by the current-measuring circuit is regulated to a setpoint value;
altering a time duration of one on and off switching cycle of the PWM signal; and
superimposing a dither function in a form of a low-frequency oscillation on the PWM signal.

20. (New) The memory device as recited in claim 19, wherein the memory device is a flash memory.

21. (New) A control unit for regulating current through an electromagnetic actuator, the actuator, a first switch and a current-measuring circuit forming a series circuit, a free-wheeling diode being parallel-connected to the actuator, and the control unit, comprising:

an automatic control; and
a pulse generator by which the first switch (11) is closed and opened using a pulse width modulation ("PWM") signal in such a way that the current flowing through the actuator and measured by the current-measuring circuit is regulated to a setpoint value;
wherein the control unit is configured to alter a time duration of one on and off switching cycle of the PWM signal and superimpose a dither function in a form of a low-frequency oscillation on the PWM signal.

22. (New) The control unit as recited in claim 21, wherein the control unit is configured to provide transmission control in a motor vehicle.